

*What is claimed is:*

1. A customer-based interruptible power supply module for removing interruptible loads from service while maintaining firm loads in service, said module comprising

5 a power line input, said power line input divided between a firm power load and an interruptible power load, said firm power load exiting said module as a firm power output;

a normally-closed interruptible power switch disposed in series with said interruptible power load power line, the output of said interruptible power exiting said  
10 module as an interruptible power output; and

a load interrupting actuation device, coupled to said interruptible power switch and responsive to an "interrupt" control signal, transmitted by an alternative communication network to said customer-based interruptible power supply module, where upon reception of said "interrupt" control signal, said interruptible power switch  
15 opens and disconnects the interruptible load from the power input line.

2. A customer-based interruptible power supply module as defined in claim 1 wherein the normally-closed interruptible power switch comprises

a power contact hold coil and a normally-closed load interrupting actuating device  
20 auxiliary contact disposed in series between the red and neutral leads of the power line input;

a first power contact disposed along the red lead; and

a second power contact disposed along the black lead, wherein as long as the power contact hold coil is energized, said first and second power contacts remain closed  
25 and the interruptible load power input flows through said switch to the interruptible power output, and when an "interrupt" control signal is received, the normally-closed load interrupting actuating device opens to de-energize said power contact hold coil and open said first and second power contacts, disconnecting said interruptible load power input from said interruptible power output.

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3. A customer-based interruptible power supply module as defined in claim 2 wherein the normally-closed interruptible power supply switch further comprises an interruption blocking timer to control the length of time the interruptible power supply switch is in the open position.

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4. A customer-based interruptible power supply module as defined in claim 3 wherein the interruption blocking timer re-activates said interruptible power supply switch after a predetermined time interval.

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5. A customer-based interruptible power supply module as defined in claim 4 wherein the predetermined time interval is not to exceed 30 minutes.

6. A customer-based interruptible power supply module as defined in claim 5 wherein the predetermined time interval is not to exceed 15 minutes.

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7. A customer-based interruptible power supply module as defined in claim 3 wherein the interruption blocking timer comprises an interruption blocking timer coil disposed in parallel with the power contact hold coil between the red and neutral power leads; and

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a normally-open interruption blocking contact disposed in parallel with the normally-closed load interrupting actuating device auxiliary contact.

8. A customer-based interruptible power supply module as defined in claim 1 wherein the normally-closed interruptible power supply switch further comprises a cold load timer for providing an additional delay to re-activating the interruptible power supply load after a power outage.

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9. A customer-based interruptible power supply module as defined in claim 8 wherein the cold load timer comprises

a cold load coil disposed between the red and neutral leads of the input power line and controlled by a time-delay-pick-up element to be re-energized a predetermined period of time after a power outage; and

5 a cold load contact disposed in series with the normally-closed load interrupting actuating device auxiliary contact, said cold load contact for remaining open as long as said cold load coil is de-energized, disconnecting the signal path between the interruptible load power input from the interruptible power output.

10 **10.** A customer-based interruptible power supply module as defined in claim 1 wherein the designation between firm load and interruptible load is determined by the customer.

15 **11.** A customer-based interruptible power supply module as defined in claim 1 wherein the load interrupting actuating device is responsive to an “interrupt” control signal transmitted by a telecommunications carrier to the customer.

**12.** An arrangement for allowing a power utility to drop power supply input to customer-defined interruptible loads, the arrangement comprising

20 a power utility sensing arrangement for determining the need to clip power supplied to a customer base comprising a plurality of N customers, and transmitting a “clip load” control signal to a communications network also coupled to the customer base;

a plurality of N interruptible power supply modules, each module disposed at a separate customer location and comprising

25 a power line input, said power line input divided between a firm power load and an interruptible power load, said firm power load exiting said module as a firm power output;

30 a normally-closed interruptible power switch disposed in series with said interruptible power load, the output of said interruptible power exiting said module as an interruptible power output; and

a load interrupting actuation device, coupled to said interruptible power switch and responsive to an “interrupt” control signal, transmitted by an alternative communication network to said customer-based interruptible power supply module, where upon reception of said “interrupt” control signal, said interruptible power switch  
5 opens and disconnects the interruptible load from the power input line.

13. An arrangement for allowing a power utility to drop power supply input to customer-defined interruptible loads as defined in claim 12 wherein the normally-closed  
10 interruptible power switch comprises

a power contact hold coil and a normally-closed load interrupting actuating device auxiliary contact disposed in series between the red and neutral leads of the power line input;

a first power contact disposed along the red lead; and

15 a second power contact disposed along the black lead, wherein as long as the power contact hold coil is energized, said first and second power contacts remain closed and the interruptible load power input flows through said switch to the interruptible power output, and when an “interrupt” control signal is received, the normally-closed load interrupting actuating device opens to de-energize said power contact hold coil and  
20 open said first and second power contacts, disconnecting said interruptible load power input from said interruptible power output.

14. An arrangement for allowing a power utility to drop power supply input to customer-defined interruptible loads as defined in claim 13 wherein the normally-closed  
25 interruptible power supply switch further comprises

an interruption blocking timer to control the length of time the interruptible power supply switch is in the open position.

15. An arrangement for allowing a power utility to drop power supply input to  
30 customer-defined interruptible loads as defined in claim 14 wherein the interruption

blocking timer re-activates said interruptible power supply switch after a predetermined time interval.

16. An arrangement for allowing a power utility to drop power supply input to  
5 customer-defined interruptible loads as defined in claim 15 wherein the predetermined time interval is not to exceed 30 minutes.

17. An arrangement for allowing a power utility to drop power supply input to  
customer-defined interruptible loads as defined in claim 16 wherein the predetermined  
10 time interval is not to exceed 15 minutes.

18. An arrangement for allowing a power utility to drop power supply input to  
customer-defined interruptible loads as defined in claim 14 wherein the interruption  
blocking timer comprises  
15 an interruption blocking timer coil disposed in parallel with the power contact  
hold coil between the red and neutral power leads; and  
a normally-open interruption blocking contact disposed in parallel with the  
normally-closed load interrupting actuating device auxiliary contact.

19. A customer-based interruptible power supply module as defined in claim 12  
20 wherein the normally-closed interruptible power supply switch further comprises  
a cold load timer for providing an additional delay to re-activating the  
interruptible power supply load after a power outage.

20. A customer-based interruptible power supply module as defined in claim 19  
25 wherein the cold load timer comprises  
a cold load coil disposed between the red and neutral leads of the input power line  
and controlled by a time-delay-pick-up element to be re-energized a predetermined  
period of time after a power outage; and  
30 a cold load contact disposed in series with the normally-closed load interrupting  
actuating device auxiliary contact, said cold load contact for remaining open as long as

said cold load coil is de-energized, disconnecting the signal path between the interruptible load power input from the interruptible power output.

21. A customer-based interruptible power supply module as defined in claim 12  
5 wherein the designation between firm load and interruptible load is determined by the customer.

22. A customer-based interruptible power supply module as defined in claim 12  
wherein the load interrupting actuating device is responsive to an "interrupt" control  
10 signal transmitted by a telecommunications carrier to the customer.

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